

A new species of *Papuina* von Martens, 1860 from Nabire, Papua, Indonesia

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ABSTRACT This paper describes a new species of *Papuina* von Martens, 1860 from forest near the Nabire River, SE Cenderawasih (Geelvnik) Bay in Papua Province, Indonesia. Shell periphery, pattern, sculpture, apertural features and coloration separate it from relatives with shells of similar size and shape.

KEY WORDS *Papuina*, *Papuina abbasianus*, Nabire River, Papua, Indonesia

INTRODUCTION

March 2019, John Abbas sent me images of a *Papuina* von Martens, 1860 that he could not identify from Papua Province, Indonesia. A local collected these snails for John in native forest near the Nabire River, in the southeastern part of Cenderawasih (Geelvnik) Bay. After a short discussion, we decided it could be an undescribed species, and John sent two empty specimens to me for further study. A study of other *Papuina* from the same region and the Aru Islands, found they are conchologically separable from the other species, and described herein as a new species.

Materials and Methods

Three shells make up the type series, the holotype and two paratypes (1 TT and 1 JA). Photography credits are as indicated below each

image. The species description was determined from the shell morphology of dry empty shells obtained by John Abbas. Comparative material comprised of shells from the author's private collection and images of museum types or specimen shells. Relative shell sizes (height) for the coniform genus *Papuina* mentioned are as follows: small < 20 mm, medium 20–35 mm and large > 35 mm.

Shells were measured using digital Vernier callipers (0.01 mm resolution), sculpture examined under low magnification (10x) using a jeweller's loupe, and weighed using a pocket-sized electronic scale (capacity 300 g x 0.01 g). Whorl count includes the apex and counted precise to 0.125 ($\frac{1}{8}$) whorl. 'Paries' (adj. parietal) refers to the 'inner apertural wall' and 'palatum' (adj. palatal) refers to the 'outer apertural wall'.

Abbreviations for shell morphometry, shell coiling and other:

D:	shell width (abbreviation for 'diameter' as per literature usage)
H:	shell height
H/D:	shell height/shell width ratio
N:	whorl count
W:	shell weight
JP	data, observations, comments or other by Jeff Parsons

Abbreviations used for museums and private collections:

NBC:	Naturalis Biodiversity Center, Leiden, Netherlands
NHMUK:	Natural History Museum, London, England, United Kingdom
RMNH:	NBC specimen label code, ex-Rijksmuseum van Natuurlijke Historie
ZMA:	NBC specimen label code, ex-Zoological Museum Amsterdam
ZMB:	specimen label code at Museum für Naturkunde, Berlin, Germany; previously known as Zoologisches Museum Berlin
JA:	John Abbas collection
JP:	Jeff Parsons collection
TT:	Tejas Thackeray collection

SYSTEMATICS

Family: Camaenidae Pilsbry, 1895
 Subfamily: Hadrinae Iredale, 1937
 Genus: *Papuina* von Martens, 1860
 Type: *Helix lituus* Lesson, 1831

Papuina abbasianus Parsons, new species
 (Plate 1, Figures 1-8)

Description. (Holotype) Medium-sized coniform shell, semi-obtect umbilicate, solid and translucent. Spire high conical; apex obtuse, subexsert. Surface shiny, protoconch smooth; teleoconch with spiral striations overlain by growth lines and threads; last whorl plicatulate, the pliculae weaker and spiral striations worn on base. A trace of buff periostracum on the last whorl. Whorls 7, regularly increasing, hardly descending in front and early ones convex, flattened toward the last; base depressed, slightly convex. Teleoconch's periphery with a crenulated filiform carina (carinula), obsolete on penult, and subangular on last whorl. Suture impressed, thread-margined on post-apical spire whorls. Shell vinaceous cinnamon with a narrow infrasutural band, white on lower whorls, fading and greyed apically; and a narrow castaneous suprapерipheral band, fading-in on the penult and almost reaches the lip's edge. Aperture subrhombic-lunar, margins sub-convergent, broader than high and subeffuse

peripherally. Parietal callus only a transparent orange cinnamon glaze, slightly darker than the base. Palatum whitened and translucent, the external coloration showing through. Outer lip white, subcrassate; upper margin arched forward and expanded peripherally, edge simple; lower margin expanded, sub-reflexed, rounded below periphery and straightened basally. Columella white, incrassate, suberect and adaxial, forming a right angle with the lip. Columellar margin sub-arcuate and broadly dilated, partially concealing a narrow umbilicus.

Type Material. Three adult shells from the type locality. Holotype (NHMUK 20190604, Plate 1, Figures 1-6) H 34.29 mm, D 31.90 mm, H/D 1.07, N 6.875 & W 1.97 g. Paratype 1 (TT, Plate 1, Figure 7) D 33.3 mm, H/D 0.93. Paratype 2 (JA, Plate 1, Figure 8) D 33.49 mm, H/D 1.10.

Measurements. (Three types) H 31.1-34.29 (av. 32.96) mm, D 30.58-33.30 (av. 31.93) mm, H/D 0.93-1.10 (av. 1.03), N 6.75-7.125 (av. 6.917) & W 1-1.97 (av. 1.42) g.

Type Locality. Forested hills near the Nabire River, Nabire Regency, southeastern Cenderawasih (Geelvnik) Bay in Papua Province, Indonesia.

Distribution. Currently known only from Nabire Regency .

Ecology/Habitat. Unknown.

External Features of Animal. Unknown.

Soft Parts. Not available for study.

Etymology. Named in honour of John Abbas and his family for supplying the type material.

Note. Currently only three specimens known.

Shell Variation. Ground colour vinaceous cinnamon (holotype = H; Plate 1, Figures 1-6), pinkish buff (paratype 1 = P1; Plate 1, Figure 7) or light ochraceous-salmon (paratype 2 = P2; Plate 1, Figure 8). All whorls of the same colour (H and P1), or early whorls different to later whorls, dark brown (P2) and the infrasutural band on the former is white on lower whorls, faded above and greyed apically; and on the latter it is greyish white, faint on later whorls; and in transmitted light, opaque or not respectively. Last whorl hardly or scarcely descends in front. Sculpture on the last whorl as per holotype, or smoother with close-set growth threads and no pliculae (P2).

Supraperipheral band almost reaches the lip's edge; either castaneous and very narrow, emerging faintly on the antepenult (H and P1); or nigro-castaneous, wider and emerges on the fourth whorl (P2), and width on the last whorl 0.6 mm vs. 2 mm respectively. In the multi-banded form (P2) bands develop on the third whorl, 4 narrow castaneous bands on top, the lowest just above the supraperipheral band; and 3 castaneous lines on the base near the umbilicus, upper one thinner & faint. Width of bands as follows: top 0.4, 0.6, 0.6, 0.4 mm; middle 2 mm; and lower bands 0.1, 0.4, 0.3 mm.

Aperture subrhombic-lunar, broader than high (H and P1) or subtrigonal-lunar, less wide, taller & rounder than in holotype (P2); and effuse or sub-effuse peripherally, forming a wide, shallow papuinoid notch or weakly indicated respectively. Parietal callus slightly darker than the base, orange cinnamon (H), cinnamon buff (P1) or ochraceous buff (P2), and the palatum more or less whitened. Outer lip obtusely pointed at the periphery (P2), rounded (H) or intermediate (P1); lip edge recurved at the periphery (P2) or not (H and P1). Lower lip margin straightened basally (H and P1) or not (P2), and columellar margin partially conceals (H and P2) or almost seals the umbilicus (P1).

DISCUSSION

I consider the following species as relatives of *P. abbasianus* n. sp. based on shared conchological features.

Papuina pileus (Müller, 1774) is similar in having a white lip and a single- or multi-banded shell (Plate 1, Figures 9-10). Shells are of equal size or smaller with an equal to greater H/D ratio, and slightly fewer whorls, lower ones more convex. Last whorl is scarcely or not descending in front and obtusely subcarinated on the lower edge of the periphery. Aperture is smaller, more oblique, of a different shape and peripheral effusion negligible or very slight. Parietal callus is light buff, of a different colour to base. Sculpture much finer and shells are differently coloured. Palatum shows the external pattern and coloration, except the coloured upper surface is brighter.

Protoconch unicoloured, generally dark purple or reddish, rarely yellowish or cream coloured. Suture dark lined (dark brown or grey) on lower whorls. Brown bands on upper surface vary in number, tone and width. All shells have a very wide basal zone, usually dark brown (Plate 1,

Figure 9), or sometimes pinkish- (Plate 1, Figure 10) or yellow brown, its colour entering the umbilicus or not. Upper surface is uniform white (Plate 1, Figure 9), cream-coloured, pinkish- (Plate 1, Figure 10) or pale yellowish-brown with or without brown spiral bands and lines. The coloured upper surface commonly has paler and darker oblique streaks; bordered above and below by opaque white bands, upper one thin (subsutural) and lower one narrow (infraperipheral), absent on white shells.

Papuina astridae Dupuis, 1931 is the most like *P. abbasianus* n. sp. in appearance. Columella, columellar margin and lip are the same, except mauve (Plate 1, Figure 11) or white (Plate 1, Figure 12). Parietal callus is golden brown (Plate 1, fig. 11) or slightly darker than the ground colour (Plate 1, Figure 12). The suprapерipheral band is chestnut or chocolate-brown. Differs in the suture is not white-margined, top of whorls almost flat and the base flattened toward an angular periphery, and apertural effusion is less distinct. Sculpture is different, protoconch very slightly granular and lower whorls plicate, the plicae thinner but not weakened on the base.

Papuina euchroes (Pfeiffer, 1854) (Plate 1, Figure 13) has a slightly larger and rather solid shell with the lower whorls and base more convex, and differently coloured. Pfeiffer described the last whorl as "reddish-fulvous" and since then it has lost most of its periostracum to reveal a vinaceous buff colour. Spire is lilaceous-rose, paler apically. It has a wider suprapерipheral band and a second thinner, pale chestnut band just below a wide, brighter white infrasutural band that emerges mottled on the antepenult. The paries is marked with a diffuse brown circumcolumellar band, not exiting the aperture, and a narrower brown band borders the palatum. Aperture is more oblique, less broad and of a different shape with slight

peripheral effusion. Parietal callus is light buff and the palatum is griseous-albous. Outer lip and columellar margin are violet tinted and callused, forming a lump on the basal margin. Back of lip brown, bordered by a hazel stripe that continues into the umbilicus. Inner edge of columella white and not callused, forming an oblique angle with the basal margin. Sculpture different, very minutely granulate and last whorl smoother with close-set growth threads.

Papuina lenta (Pfeiffer, 1854) (Plate 1, Figure 14) differs in having a slightly smaller and thinner shell with a much finer sculpture. It is differently coloured, griseous-carneous or reddish-carneous with opaque dull whitish bands. Aperture less broad, subtrigonal-lunar with slight peripheral effusion and same-coloured within. Columella, columellar margin and lip are thinner and violaceous-blackish; lip sub-reflexed.

The original description says *Papuina lenta* var. *pseudeuchroes* Vernhout, 1913 (Plate 1, Figure 15) resembles *P. lenta* but is coloured more like *P. euchroes*, except it has a slightly larger yet equally solid shell. Compared to *P. abbasianus* n. sp. it has a similar sculpture, aperture shape and size. Differs in having a more oblique basal margin and a callused greyish-white palatum, weakly showing the external pattern. Outer lip, columella and columellar margin are more expanded, thicker and lead-coloured, edged with dark brown externally. Shell rufous with a brighter white infrasutural band, which widens toward the lip, a dark brown circumumbilical band and a wider chestnut suprapерipheral band, bordered on both sides by narrower white bands.

Papuina leucorhaphé von Möllendorff, 1899 (Plate 1, Figure 16) has a similar multiple-band pattern of a narrow fuscous suprapерipheral band with thinner chestnut bands and lines above, and chestnut lines on the base. Differs in

having a less solid shell with a much finer sculpture and corneous periostracum, slightly more convex upper surface and the base is more convex just below a rounded periphery. Shell greyish white with a brighter white infrasutural band, widening toward the lip. Aperture less broad, of a different shape with slight peripheral effusion, a thinner colourless parietal callus and a white palatum that shows the external bands. Outer lip, columella and columellar margin blackish brown, thinner and slightly less expanded.

The similarities and differences in two specific shell features for all species are summarized as follows.

Supraperipheral band and other bands partially extend onto, cross or fall short of the back of the lip: (1) Extend onto back of the lip, but do not reach its edge - *P. abbasianus* n. sp.; (2) cross back of the lip and reach its edge - *leucorhapse*; (3) fall short of the lip - *P. pileus*, *P. astridae*, *P. euchroes*, *P. lenta* and *P. lenta* var. *pseudeuchroes*.

Shell periphery with or without a crenulated carinula present, forming a thread-margined suture and fading away on the antepenult or penult: (1) Fades away on penult - *P. abbasianus* n. sp., *P. lenta* var. *pseudeuchroes*; (2) fades away on antepenult - *P. pileus*, *P. astridae*, *P. euchroes*; (3) absent on *P. leucorhapse*. Since images of the types for *P. lenta* are currently unavailable, it is unknown if a crenulated carinula is present on post-apical whorls or not.

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pileus. I also owe many thanks to Jonathan Ablett, Curator (of Non-Marine Mollusca and Cephalopoda, Division of Invertebrates, Zoology Department, NHMUK), for assistance in depositing type material of *Papuina abbasianus* n. sp.

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Plate 1. *Papuina abbasianus* n. sp. compared with relatives from the same region and the Aru Islands (images reflect natural shell size ratio). **First and second rows, *P. abbasianus* n. sp., Figures 1–6** Holotype, **Figure 7** paratype 1 and **Figure 8** paratype 2. **Third row, Figures 9–10** *P. pileus* Aru Islands (JP); **Figures 11–12** *P. astridae*, **Figure 12** Manokwari, Type, and **Figure 13** white-lipped var. *Wendesi* (Windsesi), ZMA.MOLL.397489. **Fourth row, Figure 13** *P. euchroes* Indian Archipelago, Type ZMB.Mol.122101; **Figure 14** *P. lenta* locality unknown, Type; **Figure 15** *P. lenta* var. *pseudeuchroes* Fak-Fak, Type RMNH.MOL.287448; **Figure 16** *P. leucorhaphae* Karavafa River, Probable Type ZMB.Mol.51102. [Photographic credits: Figures 1–6 and 8–10 JP; Figure 7 Andy Tan; Figure 11 Adam and Leloup, 1939 Pl. 1, fig. 1; Figure 12 Bioportal, 2019a; Figure 13 Museum für Naturkunde, 2019a; Figure 14 Pfeiffer, 1846 Pl. 40, Fig. 5; Figure 15 Bioportal, 2019b; Figure 16 Museum für Naturkunde, 2019b].